

Sub B<sup>1</sup> 1.

(Amended) A method for dithering color in a graphics system that displays a group of pixels and wherein the color of the pixels is represented by color shades having fewer than eight bits, comprising the steps of:

- (a) generating an eight bit color shade value for each pixel representing a desired color for each pixel;
- (b) truncating the desired eight bit color shade value to obtain a truncated color shade value;
- (c) generating a FRAC value for each pixel from the truncated bits of said eight bit color shade value;
- (d) producing a ramp value for each pixel using said FRAC value, wherein said ramp value encodes a discrepancy between the desired eight bit color shade value and the truncated color shade value; and
- (e) using a single bit from said ramp value to select a color shade value of fewer than eight bits that determines the color of each pixel.

Sub B<sup>2</sup> 6.

(Amended) A method for dithering pixel color in a graphics system that displays a group of pixels in which primary pixel colors are represented by color shades having fewer than eight bits comprising the steps of:

- (a) generating an eight bit color shade value for each pixel representing a desired color for each pixel;
- (b) truncating the desired eight bit color shade value to produce a first color shade value comprising fewer than eight bits;
- (c) generating a FRAC value for each pixel representing the truncated bits of said desired eight bit color shade value;
- (d) producing a ramp value for each pixel using said FRAC value, wherein said ramp value encodes a discrepancy between the desired eight bit color shade value and the first color shade value;

- 13 (e) producing an addend value for incrementing said first color shade  
14 value[.];  
15 (f) incrementing said first color shade value by said addend value to  
16 produce a second color shade value; [and]  
17 (g) mapping a dither value to a bit position within said ramp value; and  
18 (h) selecting said first color shade value or said second color shade value  
19 to determine the color of each pixel in said group of pixels.

12. (Amended) A graphics system that displays color shades based upon binary  
representation having fewer than eight bits, wherein said graphics system initially  
receives a desired eight bit binary representation for each color shade that is used by  
the graphics system to render pixels in a pixel grid, said desired eight bit binary  
representation including upper order bits and lower order bits, comprising:  
select fractional logic that receives the desired eight bit binary representation and  
wherein said select fractional logic produces on its output lines the lower order bits of said  
desired eight bit binary representation value;  
a look-up table that produces a control value based upon an address of each pixel; and  
ramp probability logic coupled to said select fractional logic and said look-up table,  
said ramp probability logic producing a ramp value that encodes a discrepancy between said  
desired eight bit binary representation and said binary representations having fewer than eight  
bits.

22. (Amended) A computer readable storage medium for storing an executable set of  
software instructions which, when inserted into a host computer system, is capable of  
controlling the operation of the host computer, said software instructions being operable to  
dither pixel colors in a graphics system and wherein the color of the pixels is represented by  
color values having fewer than eight bits, said software instructions including:  
means for determining a first index value to a look-up table;

7 means for providing a look-up table value from said look-up table based on said first  
8 index value;

9 means for determining a ramp probability value; [and]

10 means for mapping said look-up table value to a bit position within said ramp  
11 probability value; and

12 means for [using said ramp probability value and said look-up table value to  
13 determine] selecting a dither color value in said graphics system.

1 36. (Amended) A method for dithering color in a graphics system that displays a group  
2 of pixels on a screen, wherein the color of the pixels is represented by color values  
3 having fewer than eight bits, said method comprising:

4 determining a first index value to a look-up table;

5 determining a look-up table value from said look-up table based on said first index  
6 value;

7 determining a ramp probability value that encodes a discrepancy between an eight-bit  
8 color value and a color value having fewer than eight bits; [and]

9 mapping said look-up table value to a bit position within the ramp probability value;  
10 and

11 using [said ramp probability value and said look-up table value to] a value stored in  
12 said bit position determine a dither color value in said graphics system.